



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,632	02/09/2001	Surinder M. Maini	HT-3765 US NA	9350
23906	7590	10/15/2003	EXAMINER	
E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1128 4417 LANCASTER PIKE WILMINGTON, DE 19805			BOYD, JENNIFER A	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 10/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/780,632	Applicant(s) MAINI, SURINDER M.	
	Examiner Jennifer A Boyd	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/25/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1 page.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The Applicant's Remarks, filed July 25, 2003, has been entered and has been carefully considered. Claims 1 – 9 and 19 – 21 are cancelled and claims 10 – 18 are pending. In view of Applicant's cancellation of claims 1 – 2 and 6 – 7, the Examiner withdraws the rejection under 35 U.S.C. 103(a) as being unpatentable over Dunbar (US 5,397,627) as set forth in paragraph 3 in the previous Office Action dated January 30, 2003. Also, in view of Applicant's cancellation of claims 3 – 5, the Examiner withdraws the rejection under 35 U.S.C. 103(a) as being unpatentable over Dunbar (US 5,397,627) in view of Hartmanns et al. (US 5,399,418) and Harpell et al. (US 5,185,195) as set forth in paragraph 5 of the previous Office Action dated January 30, 2003. In view of Applicant's Arguments, the Examiner withdraws the rejection of claims 10 – 11 and 14 – 18 under 35 U.S.C. 103(a) as being unpatentable over Dunbar (US 5,397,627) in view of Hartmanns et al. (US 5,399,418) as set forth in paragraph 4 of the previous Office Action dated January 30, 2003. Also, in view of Applicant's Arguments, the Examiner withdraws the rejection of claims 12 – 13 under 35 U.S.C. 103(a) as being unpatentable over Dunbar (US 5,397,627) in view of Hartmanns et al. (US 5,399,418) and Harpell et al. (US 5,185,195) as set forth in paragraph 5 of the previous Office Action dated January 30, 2003. However, after an updated search, the Examiner has found prior art that renders the invention as currently claimed unpatentable for reasons herein below.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 10 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geirhos (US 5,879,800).

Geirhos is directed to a low-shrinkage hybrid yarn comprising reinforcing filaments and matrix filaments (Abstract).

As to claims 10, Geirhos teaches a hybrid yarn produced by intermingling or commingling techniques (column 2, lines 40 – 45). Geirhos teaches that the reinforcing filaments can be filaments composed of a multiplicity of materials (column 3, lines 8 – 12). Geirhos teaches that the reinforcing filaments can comprise aramids such as para-aramids (p-phenyleneisophthalamide or poly(p-phenyleneterephthalamide)) and meta-aramids (poly(m-phenyleneisophthalamide) or poly(m-phenyleneterephthalamide)) (column 3, lines 33 – 39). Geirhos teaches that the hybrid yarns can be made into a woven fabric (column 8, lines 1 – 5).

As to claims 12 and 13, Geirhos teaches that the hybrid yarn can comprise hybrid yarns having linear densities of 6,000 to 150 dtex (column 5, lines 55 – 60).

As to claim 16, Geirhos teaches that the para-aramid can be poly(p-phenyleneisophthalamide) or poly(p-phenyleneterephthalamide) (column 3, lines 33 – 39).

As to claims 17, Geirhos teaches that the meta-aramid can be poly(m-phenyleneisophthalamide) or poly(m-phenyleneterephthalamide) (column 3, lines 33 – 39).

As to claims 14 – 15, Geirhos discloses the claimed invention except for that the woven material can be a plain weave as required by claim 14 or a twill weave as required by claim 15. It

Art Unit: 1771

would have been obvious to one having ordinary skill in the art at the time the invention was made to create a woven material with a plain weave or a twill weave, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice. *In re Leshin*, 125 USPQ 416. In the present invention, one would have been motivated to create a woven fabric with a plain weave or a twill weave pattern because they are commonly employed in the art and provide a fabric with high strength and integrity.

As to claims 10, 11 and 18, Geirhos discloses the claimed invention except for the random entangled loop structure has a weight per unit length of the yarn being 3 to 25 percent higher as required by claim 10 and 10 to 18 percent higher as required by claim 11 than a continuous filament yarn having the same composition but no entanglement or loops and a mixture of 50% poly(paraphenylene terephthalamide) filaments and 50% poly(metaphenylene isophthalamide) filaments as required by claim 18. It should be noted that the proportion of random entangled loop structure is a result effective variable. For example, the higher percentage of random entangled loop structure present, the total fabric weight will decrease. As the percentage of Nomex increases, the heat resistance of the yarn increases and as the percentage of Kevlar increases, the strength of the yarn increases. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a random entangled loop structure which has a weight per unit length of the yarn 3 to 25 percent higher as required by claim 10 and 10 to 18 percent higher as required by claim 11 than a continuous filament yarn having the same composition but no entanglement or loops and a mixture of 50% poly(paraphenylene terephthalamide) filaments and 50% poly(metaphenylene isophthalamide)

Art Unit: 1771

filaments since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In the present invention, one would have been motivated to optimize the weight per unit length of the yarn proportions of entangled loop structure and denier in order to create a light-weight but properly heat resistant fabric. In the present invention, one would have been motivated to optimize the percentage of Nomex and Kevlar in order to properly balance the strength and heat resistance of the yarn.

Response to Arguments

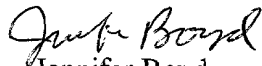
4. Applicant's arguments with respect to claims 10 - 18 have been considered but are moot in view of the new ground(s) of rejection.

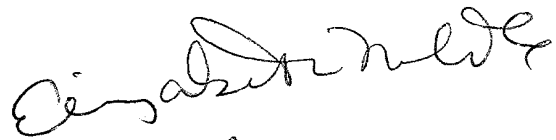
Art Unit: 1771

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 703-305-7082. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Jennifer Boyd
October 6, 2003


ELIZABETH M. Cole
PRIMARY EXAMINER